"SINGLE AND MULTIPLE REFLECTION WAVE GUIDE"

CLAIMS

1. A method of sound diffusion for realization of a horn or reflecting wave guide for sound emission in a vertical line array, characterized by the steps of:

transformation of a sound emission source with dimensions which are not negligible into a virtual point sound source exactly identical to a "real" point sound source, said sound emission source being a single sound source or a source composed of two or more sound source, and

diffusion of the sound of the "real" point source, thus obtained, towards a measurement or listening position, reflecting the sound by means of at least one reflecting surface of various geometric forms, maintaining equal sound paths from any point of the emission source.

2. The method according to claim 1, in which the sound emission source emits a planar wave and its transformation into a "real" point source is achieved by means of a parabolic convex shaped reflecting surface, with the "real" point source being positioned in the focus of the aforementioned parabolic reflecting surface.

3. The method according to claims 1 and 2, in which at least one surface reflecting the sound from the point sound source is flat.

4. The method according to claims 1 and 2, in which at least one reflection surface of the sound from the point sound source is convex.

5. The method according to claim 4, in which at least one sound-reflecting surface is parabolic.

6. The method according to claims 1 and 2, in which at least one surface reflecting the sound from the point source sound is concave.

7. The method according to claim 6, in which at least one reflection surface is hyperbolic or parabolic.

8. The method according to claims 1 and 2 or 6, in which at least one reflection surface of the sound from the point source is elliptical.

9. The method according to claims 1 and 2, in which the sound from the

point source is reflected by means of more than one flat and/or concave and/or convex surface combined.

10. The method according to any one of the previous claims, in which the sound emission source is a compression driver.

11. The method according to any one of the previous claims, in which the sound emission source is a traditional loudspeaker or has the dimension of a normal loudspeaker.

12. Method according to any one of the previous claims, in which the reflection surfaces define (starting from the surface of the emission source) a volume of air subdivided by seven partitions spaced in such a way as to form ducts with dimensions which are smaller than the wavelength of the highest acoustic frequency that has to pass through them.

13. Reflecting wave guide for sound emission in vertical line arrays starting from a sound emission plane consisting in a flat sound source, characterized by a sound reflection surface positioned in front of the sound emission plane and configured to transform the aforesaid sound emission plane into a real point source, and by at least one reflection surface combined ith the aforesaid real point source is intended to diffuse the sound towards a measurement or listening position.

14. Wave guide according to claim 13, in which the aforementioned reflection surface positioned in front of the sound emission plane has a convex parabolic form, in which at least one reflection surface of the sound associated with the real point sound source has a geometry which can be planar, concave or convex surfaces or their combinations.

15. Wave guide according to claim 14, in which each of the planar, concave or convex reflecting surfaces has a planar, parabolic, hyperbolic or elliptical form.

16. Wave guide according to claims 13-15, in which each of the aforementioned reflection surfaces is formed by the surface of elements in rigid reflecting material formed by extrusion of revolution.

17. Wave guide according to claims 13-16, also having parallel intermediary panels forming seven horizontal partitions forming ducts in the

wave guide whose dimensions are smaller than wavelength of the highest frequency that has to pass through them.

18. Wave guide acording to each of claims 13-17, in which the sound emission plane is a compression driver.

19. Wave guide according to each of claims 13-17, in which the sound emission plain is a traditional loudspeaker.

20. Wave guide according to any of the claims 13 to 19, wherein:

- the means of sound emission are enclosed in a body (13) having a cavity at the front formed on opposite sides by two divergent side walls (13C), and open from two other opposite sides,
- on the bottom of said cavity there is an emission slot (13B) for high frequency, and
- facing each of said side walls there is at least a part of a loudspeaker (13D) for medium and low frequency, and wherein:

each loudspeaker is partially covered by a rigid panel (13E), and

on the front of the body, at the sides of said cavity there are two slots (13F) forming external apertures of sound ducts of the loudspeakers for medium low tones and/or sound emission of additional loudspeakers housed in the body.

21. Wave guide according to claim 20, wherein said body is made up of two portions (130,131) rocking on an oscillating axis placed near and parallel to the emission slot (13B) at the bottom of said cavity in order to be able to change the dimension, therefore the volume of the front cavity of the body and calibrate the horizontal dispersion of the sound by varying the angular disposition of the side walls forming said cavity.

22. Wave guide according to claims 20 and 21, wherein a laser beam tracking system (133) is positioned in the centre of the slot (13B) at the bottom of said front cavity coinciding with the high frequency emission axis.